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Digital Media Literacy in the Workplace: A Model Combining Compliance and Inventivity

Anne-Sophie Collard, Thierry De Smedt, Marie Dufrasne, Pierre Fastrez[*] *Valèria Ligurgo, Geoffroy Patriarche and Thibault Philippette*

Abstract: Digital technology has become ubiquitous in the workplace, shaping so-called "new ways of working (NWOW)". This digital turn involves changes in workers' digital media competences. Competences are often linked to ideas of efficiency and performance, but concern issues of inclusion and wellbeing as well. This article introduces a conceptual framework that articulates two models of digital media literacy at work: one based on functional-operational skills that defines the worker as compliant, and the other based on critical-creative competences that defines the worker as inventive. This framework is used in two methodological approaches in order to study how digital media literacy is performed or articulated as compliance and/or inventivity in practices and discourses. The first approach is a connective ethnography including a workplace observation protocol and an interview guide to document employees and managers' practices. The second one uses critical discourses analysis in order to elucidate how workers' identities and social relations are constituted by, and constitutive of, digital media literacy discourses at work.

Keywords: digital media literacy, distant teamwork, inclusion, autonomy

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Introduction: media literacy and social inclusion

The digital turn in society modifies all means of information and communication and requires new competences to be informed and to share information, or to maintain and develop social interactions. Defined as a set of interrelated informational, technical and social competences involved in digital media practices (Fastrez, 2010; Fastrez & De Smedt, 2012), Digital Media Literacy (DML) is a key issue of social inclusion and part of the conditions of citizenship.

Digital technology has also become ubiquitous in the workplace, especially for office workers. New ways of working individually and collectively gradually emerge, supported by both technological and social evolutions. For example, workers have to deal with increasing quantities of information and need to develop strategies to avoid information overload, teleworking becomes more and more common over the years, coordination between several people through (synchronous and asynchronous) computer-mediated communication has become commonplace, and workers equipped with mobile technologies may be required to perform part of their professional activities in mobile contexts.

As the digital turn affects work environments and society alike, it involves changes in workers' digital media competences. Although competences are often linked to ideas of efficiency and performance, they touch upon issues of inclusion and wellbeing. First, being competent is commonly seen as a factor of (e-)inclusion not only within the organization but also in the broader work environment, as today's collaborations within and across organizations are sustained through diverse ICTs. DML also has implications for wellbeing at the workplace: a lack of competence can create stress and frustration, and ultimately demotivation and isolation. Furthermore, ICT-supported work practices such as collaborative writing at a distance tend to blur the boundaries between work time and leisure time, professional life and private life, workplace and home. These new conditions also require a range of competences in order to be handled in an efficient and meaningful way.

Discourses in organizations emphasize the need for people to work in team at a distance and to be able to share information and cooperate through the mediation of technology, especially in "New Ways of Working (NWOW)" contexts. Workers are required to innovate and to adapt

themselves in a context of change. Literacy is then considered not only as a set of competences to be compliant with organizations systems. This evolution of work environments involves competences to combine, modify and create tools and structures which can enhance work activities. These competences define empowered and inventive workers. This paper examines the competences that support compliant or inventive workers through organization discourses and worker practices.

The work reported in this article is part of a larger research project in which we seek to define the digital media literacy competences in distant teamwork from the observation of a variety of work contexts in Belgian organizations. The LITME@WORK research project, funded by the Belgian Science Policy Office, proposes an interdisciplinary approach to study DML in teamwork and distance work environments. It combines: 1) a study of the discursive construction of new work competences in the context of NWOW; 2) a study of work organization, workplace design and structural conditions for competence utilization and learning; and 3) a study of the relationship between digital uses and competences in the new work practices of employees through a conceptual framework based on taxonomies of competences. The final analysis of our results will yield an integrated and enriched framework on DML competences, with the input of each of the three components of the LITME@WORK project.

Our empirical work is based on ten case studies performed in ten Belgian organizations. The investigated organizations were selected to maximize diversity in their profiles: they include private and public organizations of medium and large sizes, operating in different fields, with diverse corporate cultures, and at different stages of implementation of the NWOW project.

This article reports on the ongoing work undertaken under the first and third components of this project, and is structured as follows. First, we introduce a theoretical framework based on the definition of the compliant vs. inventive worker through two tensions. On the one hand, DML is examined in the societal context and in the economic context. On the other hand, DML is considered either as a set of functional-operational skills or critical-creative competences. Second, we present the two research approaches towards the analysis of DML developed as part of our research: the workers' practices point of view, and the organizations' discourses point of view. We end by showing the added value of situating the results of each of these approaches within our theoretical framework (which articulates the two tensions related to DML definition) for the study of DML in the

workplace.

Compliance versus inventivity: two versions of media literacy

The nature, scope, purpose and means of development of media literacy have been, and still are, subject to debate among media and education scholars (Hobbs, 1998). To some extent, the absence of agreement over these issues is more a richness than a problem for the field of media literacy and media education. As Potter (2013) put it, for each of these issues, the alternative existing views seem to be considered as complementary, only differing in terms of the emphasis put on one or another side of the issue, and there is little argument about what view is the best one.

It is not the place here to make an inventory, or a history of the evolution of these alternative views on what media literacy is (a body of knowledge, a set of competences, a socially situated practice…), to what it applies, how it should be fostered, or what its purpose should be. Other contributions have summarized these questions before ours (e.g. Hobbs, 1998; Buckingham, 1998; Potter, 2013). Rather, we will focus on two specific sets of alternative views on media literacy that are in tension. This will allow us to situate the role of media literacy relative to the notions of social inclusion, empowerment, and autonomy.

The first tension is related to media literacy's purpose, and will appear relatively unproblematic. It situates media literacy in two different, but not exclusive arenas. The second tension is related to the scope of the competences covered by media literacy. This second tension is potentially more problematic, as it opposes two partially contradictory definitions of media literacy.

An important feature of our theoretical standing is that we consider DML as being a social and discursive construction. A skill/a competence is not an objective entity, the notion of what constitutes a skilled/competent individual is subject to a construction through social discourses (including academic discourses). However, as it will be discussed later, competences as social and discursive constructions do have "real" social and economic implications (i.e. certification or validation).

A first tension: active citizens and competitive workers, democracy and market

While comparing the tradition of media literacy with that of information literacy, Livingstone (2008) contrasted the different purposes that may be assigned to the development of media literacy. According to her, a first purpose is related to democracy, participation, and active citizenship. In this socio-political view, media literacy benefits individuals in that it allows them to be informed citizens that are well equipped to participate actively in the democratic process. The ability to access, understand and evaluate information and media allows them to inform themselves and think autonomously and critically. The ability to create media supports them in making their voice heard in the public sphere. This view emphasizes the need for individuals to be able to subtract themselves from the influence of mass media (Buckingham, 1998; Potter, 2013). Media literacy is seen as giving individuals more control over how the media may affect them, possibly fostering social activism (Potter, 2013). In this context, critical thinking plays a central role in the definition of media literacy. Arguably, critical understanding of media and information has received the most attention in studies of media literacy assessment (e.g. Arke & Primack, 2009; Hobbs & Frost, 2003; Quin & McMahon, 1993; Phang & Schaefer, 2009).

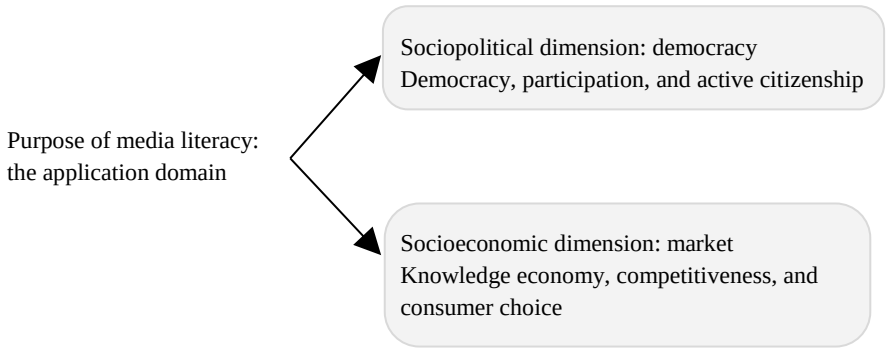
A second purpose cited by Livingstone (2008) is related to the knowledge economy, competitiveness, and choice[1]. Here, the individual is considered in their relationship to the economy, that is, the market economy, in two respects: as a consumer, or as a worker. As consumers, the media literate individuals are expected to be able to maximize their knowledge of alternatives in a transparent market, in order to make informed choices. For example, their ability to search for information online, coupled with their capacity to forestall the strategies of advertisers, would empower them in the choices they make regarding the products and services they wish to acquire. As workers, they are expected to put their media competences to use as part of their professional activity: accessing, selecting and evaluating the most relevant information for their job, and producing media messages in the context of work, all to achieve more on the workplace, and possibly climb up the ladder of employability. In both cases, media literacy is meant to allow people to reap the benefits of the use of media and technology to achieve

[1] Livingstone (2008) does mention a third purpose centered on lifelong learning, but as we consider it as a general means to achieve the two other purposes, we will not consider it here.

their personal (or professional) goals (van Deursen, Courtois, & van Dijk, 2014).

While the first purpose detailed above is historically linked to the media education movement, this second purpose is very much in line with the emergence of information literacy and digital skills in the public (and particularly political) discourse (e.g. European Commission, 2009). In this context, the skilled use of digital technology (and especially the Internet) is seen as essential for participation in a knowledge economy (Grant, 2007), and is considered as a way of reducing the second-level digital divide (Hargittai, 2002; Brotcorne et al., 2010; van Dijk, 2005; van Dijk & van Deursen, 2014).

Figure 1. First tension: the purpose of media literacy (the application domains)



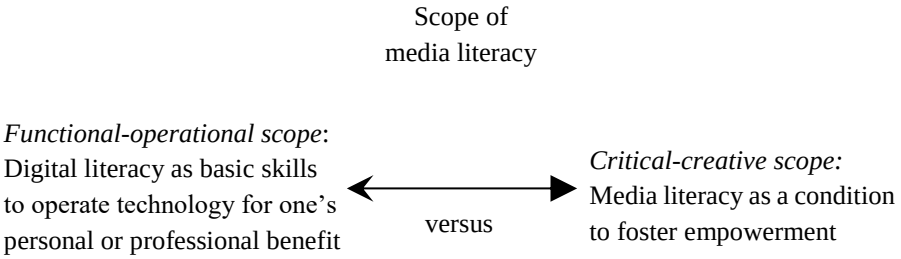
A second tension: active and critical citizens and functioning individuals

Unlike the first tension we described, there is an important, and problematic, gap between the terms of this second tension. Describing how the presence of media literacy in the public agenda has evolved over time, Buckingham (2009) warned that the proximity between media literacy and digital literacy, another concept that gained substantial importance in the official discourses, may have dire consequences on what is included in the concept of media literacy. His argument stemmed from the claim that media literacy and digital literacy fostered participation:

> Participation is clearly seen here as a good thing in itself —although it is often rather loosely defined. In practice, participation seems to be largely confined to basic functions such as accessing e-government, job seeking, finding health information, online training, paying your taxes, and of course shopping. It stops quite a long way short of the kinds of democratic participation that some of the more enthusiastic proponents of digital activism find so exciting. The skills that are involved here are also essentially functional or operational - "how-to" skills. (Buckingham, 2009, p. 17).

In brief, the grand emancipatory vision put forth by the media literacy movement seems undermined by utilitarian implementations of digital literacy. On the one hand, media literacy has great ambitions. It aims at empowering individuals to think critically and autonomously, be aware of the ways in which the media contribute to reproduce dominant ideologies (Kellner & Share, 2007), recognize and appreciate the cultural value of media practices and their contribution to a given society's cultural heritage (Buckingham, 1998), take social action in the multiple communities one belongs to (Hobbs, 2010), or contribute creatively to their culture through their own media productions.

Figure 2. Second tension: the scope of media literacy



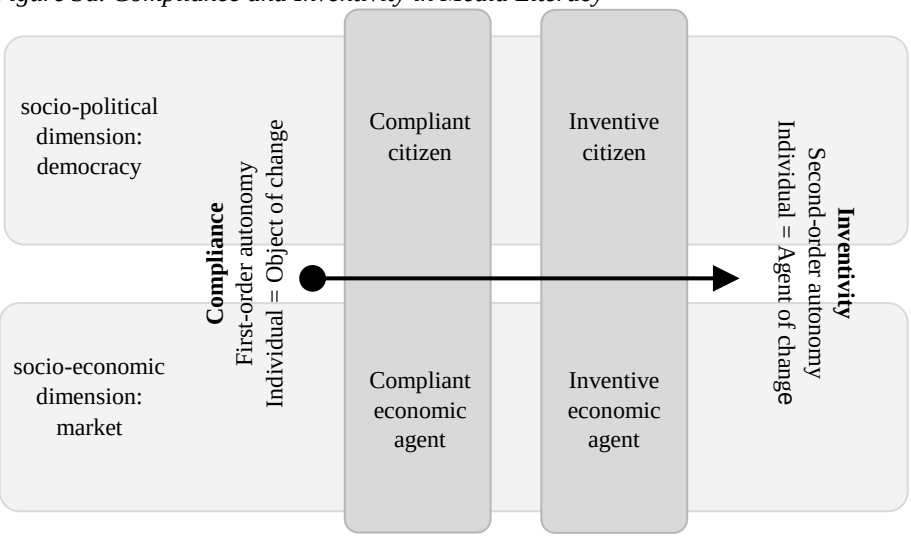
On the other hand, the skills that are meant to be developed or assessed through digital literacy policies, interventions or educational initiatives are often much more prosaic, and correspond to basic abilities to operate technology for personal or professional benefit, such as using a search engine to find information online, connecting to content providers (news, movies, television programs…), interacting with public or private institutions

through the web, staying in touch with friends, family or colleagues through the use of mobile telephony, email or social networks, or posting statuses, comments or pictures on the web for others to see. In the face of this reduction of digital literacy to technical skills, Buckingham (2006) argues that media literacy offers a conceptual framework that could help revamp digital literacy, and extend media literacy in the realm of digital media and technology.

Articulating the two tensions into two models of media literacy, inclusion, and autonomy

In the first tension we described, serving the interests of democracy is potentially different from serving the interests of the economy, although one is not exclusive to the other. The second tension emphasizes that fostering active citizenship is very different from enabling people to merely use media and technology in functional and operational ways. While these two tensions are not equivalent, they both position the figure of the active, critical citizen in opposition to something else. This common figure allows us to articulate the two tensions, and create a system of oppositions that exists both in the realm of society in general, and in the world of work in particular.

Figure 3a. Compliance and Inventivity in Media Literacy



The first tension distinguishes between the democratic society and the market economy, between the active and critical citizen and the competitive economic agent[2], without making any assumption regarding whether competitiveness comes from mastering functional-operational or critical-creative competences. The second tension opposes the active critical citizen to the well-functioning individual, be they considered as citizen or worker. The articulation between the two results in an opposition between two very different views on participation and inclusion behind the concept of media literacy, which can be considered both from a socio-political point of view and from a socio-economic viewpoint. In Figure 3a, this opposition is represented along the horizontal axis, and distinguishes between compliance and inventivity in the use of digital media and technology. This distinction spreads across the sociopolitical dimension (top half of the figure) and the socio-economic dimension (bottom half of the figure).

The first term of this opposition is the individual who develops compliant uses of media and technology. In this perspective, media literacy is defined as a set of functional and operational skills necessary for being a "good citizen" or a "good economic agent". In other words, the literate citizen/agent is the one that is able to make basic use of technology to access information and maintain their relationships to other people and organizations. The function of media literacy with respect to social inclusion assumes that individuals must be educated to be more adapted and adaptive to the system. Technological innovation corresponds to an ineluctable evolution, with which individuals must keep up by developing appropriate uses of media and technology. As such, the citizen or economic agent is the object of change.

The second term of the opposition is the individual who develops inventive uses of media and technology. In this perspective, media literacy is defined as a set of creative and critical competences that enable individuals to emancipate themselves from power relations and to adjust and rethink their media environment to improve their participation. In this case, the media literate individual is seen as an agent of change towards the media system they are a part of: instead of adapting *to* the system, they can trigger adaptive transformations *of* the system.

The opposition between compliance and inventivity, pictured in Figure 3a, allows us to contrast two alternative models of media competences, social inclusion, and autonomy. The first model is centered on the notion of

[2] ...be it an efficient worker or an informed consumer (see above).

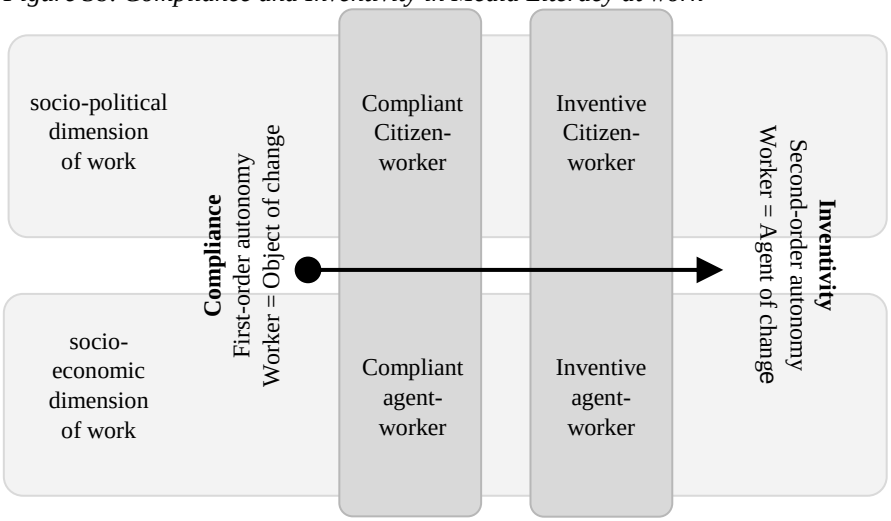
compliance only. It poses that media literacy covers a range of operational skills related to the use of media and technology, which allow people to function properly in their everyday lives. Hence, the way media literacy fosters inclusion is by supporting people in doing whatever is required for them to not live in isolation: have access to information and entertainment media, be registered with public services, shop online, maintain contacts with other people, etc. This view also corresponds to a minimal view of autonomy, in which the individuals are able to "manage themselves" and to function within the established frames of society or work without the constant and necessary assistance of others. We call this first-order autonomy.

The second model is not opposed to the first one, but rather extends it considerably, and combines compliance with inventivity. Instead of limiting media literacy to functional skills, it defines it as the set of media competences that enables active citizenship (or workmanship), critical emancipation from media discourses, and creative appropriation of media devices. The attentive reader will have noticed the differential use of the terms "skills" and "competences" in the description of media literacy in our two models. Whereas skills enable the reproduction of learnt procedures in ways and contexts that are similar to those in which they were assimilated, the concept of competence (Scallon, 2004; Rey et al., 2012) refers to the ability of the individual to engage intentionally in relevant courses of action in complex, novel and non-stereotyped situations, by drawing on their knowledge, skills and attitudes, and on the external resources available in the situation. In this second model, the media literate individuals are deemed to be competent, not just skilled. This means they can be both compliant and inventive, depending on the situation. As far as how media literacy may support inclusion, this model poses that the media literate person is able to (re)define, or (re)invent, the conditions of their own inclusion to society (or the workplace), i.e. how they perform their roles within the different communities to which they belong, how they maintain, nurture or alter their relationships with institutions and organizations, or how they achieve their duties as citizens or as economic agents. Correlatively, this model includes an extended view of autonomy, in which people are not only able to function on their own, but also to think autonomously and critically about the established frames of the society or the economy in which they function, and either embrace them or question them, and possibly take action to change them. We call this second-order autonomy.

The remainder of this paper will examine these two models of media

literacy, inclusion and autonomy in the specific context of work. Figure 3b applies the framework delineated in Figure 3a to this context. Specifically, we will focus on new distant teamwork practices. Based on this framework, our analyses seek to draw a diagnosis of the respective presence of the two models described above in the practices and discourses of digital teamwork. The role of these models is indeed to provide a grid to analyze our data in relation to important challenges of new work environments. Hence, we do not seek to validate these models, but to use them to feed our research with the socially relevant issues they highlight.

Figure 3b. Compliance and Inventivity in Media Literacy at work



In the next sections of this paper, we will introduce two complementary empirical approaches that are part of the LITME@WORK project, and that focus respectively on the analysis of how new distant teamwork practices are performed by workers, and on the analysis of the social discourses on these new practices. The purpose of this paper is to showcase how these two approaches can be used in research to examine how media literacy is (implicitly or explicitly) positioned with respect to the two models of media literacy, inclusion and autonomy delineated above in actual distant teamwork practices and in the social discourses on these practices. In addition to its relevance for research, the examination of compliance and inventivity in work practices and work-related discourses may also prove useful for human

resources and IT management, as a way to inform the implementation and the management of new communication tools in the workplace, to guide the development of training programs that are better focused on the competences workers actually miss, and to open up the debate over the meaning and social consequences of "DML" to different and possibly conflicting perspectives. These will be elaborated further in the conclusion of this article.

Digital media literacy in the analysis of distant teamwork practices

As the practices related to distant teamwork gradually become more and more present in the workplace, the necessity for workers to develop appropriate skills or competences to perform them increases. These practices call for the ability to do such things as using technology to manage the team's tasks, priorities, roles and interactions, authoring documents collectively, organizing shared informational resources, or coordinating one's activity to that of other team members through digital media. Based on our first model, this type of media literacy can be envisioned as a set of basic skills (rather than competences) that allow the worker to implement predefined procedures and perform actions that are dictated by technical and organizational factors. In brief, workers are expected to adapt, i.e. to learn how to operate the tools imposed on them by their employer, and comply with the prescribed use of these tools. In our second model, the media literacy called for by distant teamwork supports the workers both in being compliant with the new tools and procedures, but also in being inventive in the performance of their professional activity, through the continued adaptation of the informational and sociotechnical context of the organization they work in.

The first approach that examines the tension between compliance and inventivity in DML is focused on the definition of the competences related to distant teamwork from the point of view of office workers, through the documentation of the work practices that call upon them. Unlike the majority of research works dedicated to media literacy competences, which define such competences a priori before attempting to validate their definition, the objective we pursue is the very definition of these competences from the perspective of workers, based on field observation, along with the definition of indicators for these competences.

For this first approach, our data collection process primarily involves semi-structured interviews with office workers, complemented by

observations in their work environments. We selected two teams in each of the ten investigated organizations. The selection was made so as to reach diversity in terms of team design and functions. We are in the process of interviewing the team leader and two team members for each team. Forty team members and twenty team leaders will have been interviewed at the end of the study (roughly half of the interviews have been completed at the time of writing this article).

In order to study the competences called for and developed by ICT-supported distant teamwork practices, we collect and analyze data based on categories of *activities* involved in distant teamwork work practices. Hence, our research veers away from tool-oriented approaches that reduce digital competences to technology-related operational skills. Such approaches define their unit of analysis based on the use of specific software or hardware tools by workers. This represents a potential bias towards the "compliance" model of DML, which we want to avoid. Indeed, our observations aim to include, for example, how workers are able to combine systems, create specific tools or bypass of the devices implemented by their employers, all of which may be required by the workers' team activities to achieve their objectives.

From a theoretical point of view, we consider distant teamwork practices from the perspective of situated action theory (Suchman, 2007). When documenting these practices, we examine how courses of action depend on their material and social circumstances, and consider office spaces as "ecologies where office and inhabitant co-evolve" (Kirsh, 2001, p. 308). We consider DML as involving the ability to opportunistically make use of internal (skills, knowledge, attitudes) and external (material and social) resources available in the context in which work is achieved. Hence, we examine the practices of distant teamwork to infer the DML of the individuals that perform them.

We document these practices through a conversation between the researcher and the informant which turns into a guided tour of the informant's workspace (Malone, 1983; Barreau & Nardi, 1995), led by the informant. The informants' discourse is supplemented by a video capture of the operations that they carry out at their workstation. Our interview protocol is based on a set of collaborative activities identified by reviewing the computer-supported cooperative work (CSCW) literature (Olson & Olson, 1997, 2012; Grudin & Poltrock, 2012, 2013), a subfield of the Human-Computer Interaction dedicated to the design of collaborative technologies,

based on observational research on collaborative work practices. We used the CSCW to draw an inventory of the activities related to distant teamwork that could be supported by digital technology. The following eleven activities (Collard et al., 2016) were selected:

1. Authoring a document collectively
2. Sharing a collection of documents
3. Managing outgoing information
4. Managing incoming information
5. Using others to find information
6. Making collective decisions regarding task distribution, team governance and roles, and overall team functioning
7. Managing one's tasks in relation with others
8. Planning a meeting
9. Planning the team's activity
10. Working synchronously in the distance with other team members
11. Organizing one's workspaces for collaboration

Our interview guide details each of these eleven activities into up to eight dimensions of technology-supported distant teamwork, which are systematically accounted for in our data collection. These eight dimensions allow for the fine-grained analysis of how workers are able to perform these activities. The necessary redundancy between activities and dimensions accounts for the intricate relationships between the technologically-mediated activities of distant teamwork. These dimensions are the following.

Task management, at the team's and the individual's level. At the collective level, it consists in the technologically-mediated management of the distribution of work activities among team members and their articulation, "a kind of supra-type of work in any division of labor" (Strauss, 1985, p. 8; cited by Schmidt & Bannon, 1992). At the individual level, it involves the use of technology to adjust one's task execution to the other's activities.

Information management includes the collective dimension of digital information production, as well as the contribution of individual information authoring for the team, and the processes through which information is shared (including the timing of sharing, the organization of shared resources, and the management of accesses to shared information). While the individual management of personal information has been extensively studied (e.g. Barreau & Nardi, 1995; Boardman & Sasse, 2004; Jones & Teevan, 2007; Jones, 2008), the individual management of shared information has garnered

little attention (Zhang & Twidale, 2012).

Time management touches upon how team members make use of information technology to manage the time allocation, frequency, scheduling, and synchronicity of both the team's activity and the individual's activity in relationship to the activity of the team (Blandford & Green, 2001). It includes the management of interruptions (O'Conaill & Frohlich, 1995), i.e. managing both the extent to which one interrupts others, and the extent to which one is accessible and can be interrupted by others (Reder & Schwab, 1990).

Awareness has emerged in the CSCW literature as a critical factor for successful collaboration and coordination: the understanding of the activities of others, which provides a context for one's own activity (Dourish & Bellotti, 1992). Schmidt (2002) highlighted how awareness was as a (too) broad concept that spans from a general awareness of the respective knowledge, expertise and social standing among team members, and of their respective location and availability (or social awareness—Tollmar *et al.*, 1996), to a much more specific awareness pertaining to tightly coordinated team activities, namely the practice and ability to coordinate by monitoring others and making one's own activity visible to others.

Space and distance management pertains to the management of the spatial properties of one's work environment at different scales. It affects the spatial layout of one's local digital workspace (Kirsh, 1995), the proxemics of one's work place (e.g. who is working closest to whom), and the separation between work sites in teleworking (Olson & Olson, 2000).

Collective decision making corresponds to the processes through which collective decisions are made with the support of information technology (DeSanctis & Gallupe, 1987).

Reflexive tool use is one of two "meta" dimensions that involve the individual's ability to not only use information technology as part of their professional activity, but also reflect on the way information technology affects their work. It includes identifying one's technological needs and how the affordances of different technologies meet them, selecting tools accordingly, appropriating them (i.e. tailoring them to one's needs—Dourish, 2003), and assessing their efficiency *post hoc*. This ability of people to reflect on their informational and technical needs, structured by the formal nature of their work, can also be exploited for the design of collaborative tools (Ravenscroft et al., 2012).

Comprehension of "sociomatics" is the second "meta" dimension. It is

based on the view that the evolution of information technology has brought it to go beyond the automatic processing of information (or informatics), and encompass the automatic processing of social interactions (or sociomatics). In this context, the comprehension of sociomatics corresponds to the understanding the individual has of the social entailments of technology use. Examples include understanding how the choice of one tool for sharing information with the team impacts access to information for each team member, or understanding how one's activity is visible to different people and how others can negotiate access to one's time through the use of a given tool (Hollan & Stornetta, 2000).

Not all eight dimensions are relevant for all eleven activities. Table 1 represents which dimension is explored for which activity. Each dot in the table corresponds to a (set of) question(s) in our interview guide.

The theoretical opposition system between compliance and inventivity in DML (presented above) guides our data collection protocol as well as our analysis of workers' distant teamwork practices in four different ways. First, the focus of our data collection protocol on activities instead of tool uses stems from our intention to observe and document both compliant and inventive practices related to digital media in distant collaboration. A more restrictive focus on compliant practices would have brought us to predefine a set of tools that our informants needed to master, and examine whether workers could or could not make use of them in prescribed ways, thereby focusing on technologically-defined and operational skills in our study of DML. On the contrary, we consider the inventive worker as a critical and empowered ICT user, capable of escaping technological determinism (Vedel, 1994).

Second, through our interview guide, we seek to adopt the workers' point of view in order to collect data on their own practices and how they relate to the organizations' rules and structures: either by simply complying with them, or by developing inventive and autonomous thinking regarding them.

Third, we explicitly integrate the compliance vs. inventivity opposition in our analyses, by examining how workers appropriate media and technology, in their technical, informational and social dimensions. Workers can comply with the intended use of the tools, so they appropriate ICT as it was meant by the designer or by the organization. Or they can take liberties with respect to these affordances and constraints. Appropriation is therefore defined as a kind of poaching (de Certeau, 1990). ICT users take advantage of affordances when it is appropriate and create new personal uses according to

their needs, expectations, motivations, all oriented by professional goals.

Table 1. Eight dimensions of the eleven analyzed distant teamwork activities

Activities / Dimensions	Task management	Information management	Time management	Awareness	Space and distance management	Collective decision making	Reflective tool use	Comprehension of sociomatics
Authoring a document collectively	•	•	•	•	•	•	•	•
Sharing a collection of documents		•		•	•		•	•
Managing outgoing information		•		•	•		•	•
Managing incoming information		•	•	•			•	
Using others to find information			•	•	•		•	•
Making collective decisions regarding task distribution, team governance and roles, and overall team functioning		•	•	•	•	•	•	•
Managing one's tasks in relation with others	•	•	•	•	•		•	•
Planning a meeting	•	•	•	•	•	•	•	•
Planning the team's activity	•	•		•	•	•	•	•
Working synchronously in the distance with other team members	•	•	•	•			•	•
Organizing one's workspaces for collaboration	•	•	•	•	•	•	•	•

Fourth, our analyses consider inventivity in the examination of abilities to critically evaluate how technology affects the dynamics of work. In particular, the last two dimensions of the technology-supported distant teamwork are focused on this role: the reflective use of tools, and the comprehension of sociomatics. These abilities to adopt a reflexive attitude towards ICT uses and to understand how they affect work and social interactions are necessary (but insufficient) conditions of inventivity.

Digital media literacy in the analysis of distant teamwork discourses

According to the social-constructionist perspective as elaborated in the sociology of work (e.g. Rigby & Sanchis, 2006; Stroobants, 1993), there is no objective reason or empirical necessity behind any definition of "skills" or "competences" at work, despite the myth according to which it is possible to identify the intrinsic content of work – Stroobants talks about a "fiction of the real work" (1993: 93, our translation) – and therefore to reach a spontaneous agreement over what should be defined and valued as skills or competences. Hence, the definition of skills and competences is seen as a social construction where a range of social groups – typically employers and workers (represented by trade unions), but also experts (in HRM or education science for instance) and the ICT industry (which gains increasing influence in the context of the digitalization of work) – have (more or less) different interests, strategies and resources. Our second approach to DML in distant teamwork takes a similar starting point but gives a stronger emphasis to discourses and their links to social processes and structures. We are interested in mapping the discourses through which "the digitally literate worker" is articulated by different social groups within organizations (mainly HR departments, communication departments, IT departments, trade unions and bottom-up initiatives such as NWOW communities of practice) who seek to legitimate their own views and interests.

Our second approach is grounded in critical discourse analysis (CDA), especially Fairclough's (1989, 1992) framework. CDA aims to "connect very careful, detailed, close textual analysis with discourse processes occurring within the larger social community and larger social changes (...)" (Mills, 2004: 140). An important principle of CDA is indeed that "it is through language that we constitute the world, or, put simply, how we talk about the world influences the society we create, the knowledge we celebrate and the institutions we build" (Hansen & Machin, 2013: 118). Likewise, we consider that discourses of DML at work do have social, economic and political implications in that they contribute to produce, change or reinforce identities and social (power) relations at work (Rigby & Sanchis, 2006). Yet according to CDA, the interplay between discourse and the social world is not a one-way relationship. For Fairclough (1989), discourses are shaped by the non-discursive (e.g. economic, technological, physical, psychological) elements of the social structure in a broad sense, including power relations. In that sense the relationship between discourse and the other dimensions of the

social world can best be described as dialectical (Jørgensen & Phillips, 2002). We can again refer to insights from the sociology of work. Rigby and Sanchis (2006) takes as examples women's employment, service sector employment and employment in small firms to show that several (non-discursive) social factors shape the definition of skills at work, for instance the type and sector of work, the size of the organization, the governance culture in the organization and the overall trends in the job market.

Although the concept of ideology is disputed in discourse analysis (Mills, 2004), CDA still considers that discursive practices do have an *ideological effect* when they serve the interest of particular social groups and contribute to the creation of unequal power relations (Jørgensen & Phillips, 2002). In that respect, critical research (e.g. Hambye et al., 2013; Olivesi, 2006) has been prompt to highlight the ideological function of the *managerial discourse*: with its emphasis on autonomy, collaboration and well-being, the managerial discourse aims at "manufacturing consent" (Fairclough, 1989). What is at stake is not just a matter of establishing the adhesion of the workers to the (neoliberal) projects of decision makers in companies and "reducing resistance to change" (to quote a common trope of the managerial discourse), but a matter of *mobilizing* the workers, i.e. making them participating in the new management culture - even if there are drawbacks in adopting "new ways of working" (Jemine, 2016). Ultimately Hambye et al., (2013) challenge the understanding of "autonomy" in the managerial discourse, suggesting that it should best be understood as doing performant multi-tasking, coping with permanently changing situations and dealing with increased time constraints. This discussion over the meaning and function of "autonomy" in the managerial discourse is of direct relevance to the focus of this paper, as it suggests the following hypothesis: the managerial discourse tends to construct *inventive* workers in *socio-economic terms* and *compliant* workers *in socio-political terms*.

As formulated by Fairclough the *critical* project behind CDA is "to show up connections which may be hidden from people - such as the connections between language, power and ideology (...), to show up their generally hidden determinants in the system of social relationships, as well as hidden effects they may have upon that system" (Fairclough, 1989: 5). As noted by Jørgensen and Phillips (2002), this position is not to be understood as a critique of the dominant ideology in the strict sense of the Frankfurt School. Indeed, the premises of such a critique, especially the idea that *academic experts* can reveal the *true* social conditions behind discourses, contradict the

social-constructionist perspective. Rather, Jørgensen and Phillips highlight that for Fairclough "what is true should not be determined by a scientific elite but by a public, democratic debate in which different representations are compared with one another in relation to both their content and their social consequences" (Jørgensen & Phillips, 2002: 181). Our approach takes up the same "minimal definition" of critique as proposed by Jørgensen and Phillips: a critique defined "as the unmasking of dominant, taken-for-granted understandings of reality" (Jørgensen & Phillips, 2002: 176) in order to transform them "into potential objects for discussion and criticism and, thus, open to change" (Jørgensen & Phillips, 2002: 178). This applies to scientific research as well, which has a set of explicit rules for constructing *discussable* representations of reality, thereby contributing to wider democratic debates in and about society.

In our study, Fairclough's three-dimensional framework (1989; 1992) is used to analyze discourses of DML at work at the crossroads of texts, discursive practices and the other aspects of social practice. First, the analysis of the *text* focuses on the formal features through which discourses are realized. According to Fairclough the semiotic features of a text do not only have a representational or "ideational" (Fairclough's word) value but also an identity and relational value, which has to do with "the ways in which social relations are exercised and social identities are manifested in discourse, but also, of course, with how social relations and identities are constructed (reproduced, contested, restructured) in discourse" (Fairclough, 1992: 137). In our study, this first dimension refers to the semiotic features of texts produced by social actors in organizations (e.g. HR departments, communication departments, IT departments, trade unions, self-organized initiatives by workers) in order to communicate about "new" work practices and environments. By "texts", it is meant both documents and talks (interviews). Indeed, at the time of writing this paper (January 2017), we are collecting communication texts (NWOW projects, newsletters, strategic objectives, job descriptions, etc.) from the organizations we selected as cases, as well as from other institutions. We are also carrying out interviews in five out of the ten selected organizations, with the management (communication department, HR, IT, NWOW or change manager), the unions, and one team in each organization (i.e. the team leader and two team members).

In Fairclough's model, *discursive practices* mediate the relationship between the text and the larger social practice. The analysis of discursive

practices "focuses on how authors of texts draw on already existing discourses and genres to create a text, and how receivers of texts also apply available discourses and genres in the consumption and interpretation of texts" (Jørgensen & Phillips, 2002, p. 69). In the context of our study, this dimension would lead us to address the discursive practices of the different social actors, by examining what discourses they draw upon in order to consume and interpret organizational texts about DML at work and more broadly "new ways of working". However, such an analysis is not possible in this study due to time constraints and an already complex fieldwork organization, which should also accommodate demands from the other components of the LITME@WORK project.

Finally, the third dimension of Fairclough's model is the *social practice*. Every discursive practice belongs to a social practice (e.g. recruiting workers, promoting organizational change) that can have various orientations (e.g. economic, cultural, ideological). These should be accounted for in the analysis in relation to the broader social structure, which includes the *order of discourse*–i.e. "the configuration of all the *discourse types* which are used within a social institution or a social field" (Jørgensen & Phillips, 2002, p. 67, emphasis in original; this notion is borrowed from Foucault)–and non-discursive (e.g. economic, institutional, technological) aspects. A key question here is whether the discursive practices (as part of social practices) reproduce the social order by replicating established discourses, or challenge the social order by combining different discourses in new ways (interdiscursivity). One famous example of this is Fairclough's analysis of the marketization of universities as witnessed by the clash of corporate discourse and (traditional) higher education discourse in university job advertisements (Fairclough, 1993). For the purpose of this research, we make a distinction between the organizational structure (referring for instance to the sector and size of the company, the work organization, procedural and decision rules, and corporate culture) and the broader social structure (i.e. the wider socio-economic and socio-political order: political and economic situation, job market evolution, state of the "social dialogue", increasing influence of the IT industry, etc.). Ultimately our analysis aims to elucidate how identities and social relations at work are constituted by, and constitutive of, potentially conflicting discourses of DML in distant teamwork.

In addition to these three dimensions of distant teamwork discourses, we make a distinction between three (interrelated) analytical dimensions where

DML is articulated as compliancy and/or inventivity from a socio-political and/or socio-economic point of view. For each dimension a range of CDA tools can be used to elucidate how DML is represented in organizational texts in respect to compliance and inventivity, and with which possible implications for identities and social (power) relations at work (socio-political dimension). A first dimension is the ways in which *digital media literacy* itself is represented through semiotic choices such as lexical and visual choices for referring to DML, or the aspects of DML that are excluded (i.e. *not* said or shown in a text). A second analytical dimension relates to the ways in which *the workers* are represented through semiotic choices, what aspects of their identity are valued, devalued or omitted. For example, Hambye *et al.*'s (2013) analysis of a communication campaign from SELOR (2012), an agency in charge of recruiting the personnel for public administrations in Belgium, shows that the NWOW worker is seen as "trendy", "dynamic", "autonomous", "friendly", "honest", "sociable", "creative" and "committed". At the opposite, the non-NWOW worker is implicitly constructed (and devalued) as "static", "unmotivated", "passive", "withdrawn", "conformist", "rigid" and "old-fashioned". Structural oppositions such as this one contribute to aligning the reader, hearer or viewer to the views of the text producer (Machin & Mayr, 2015). A third and last analytical dimension refers to the ways in which actions or processes (and circumstances) are constructed through semiotic choices. In the context of this research, this dimension refers to *work practices* (and the broader work environment). For example, the analysis can focus on instances of nominalization, structural opposition and invention of concepts (Fairclough, 1992; Machin & Mayr, 2015; Guilbert, 2011). Also worth noticing is the analysis of transitivity, which gives important insights regarding how responsibility and agency are implicitly constructed. In our approach, the analysis of transitivity is used to elucidate how workers are positioned as compliant objects or inventive subjects in relation to work practices and environments.

The corpus already collected for the purpose of this study suggests that organizational texts about "new ways of working" often use lexical and visual features that represent DML as inventivity, as indicated for instance by the explicit and abundant references to autonomy, flexibility, creativity and activity. Yet as constituents of the managerial discourse, these references contribute to establish the adhesion of the workers to organizational changes: no one could reasonably reject an initiative that aims at increasing the quality

of work and the wellbeing of the workers (Hambye et al., 2013). These keywords are actually abstractions that bring confusion regarding what is at stake and who decides what. They raise the (critical) question: what is being concealed and why, or to put it differently, what kind of power relation is involved? Similarly, it seems from these examples that agentivity of workers is removed through nominalization, exclusion and passive verbs (cf. also the semiotics of change: Olivesi, 2006). Along the socio-political dimension, such lexical and grammatical choices position the workers as passive objects who are required to adapt to new management models, new technological conditions and new corporate objectives. In these cases, DML is constructed as compliance - a compliance that is a precondition for organizational change but is not overtly required (at the difference of inventivity). These preliminary observations suggest that the two models of DML are represented through different semiotic choices whereby ideal workers are positioned as both inventive along a socio-economic dimension *and* compliant along a socio-political dimension. From a CDA perspective, one interpretation of this is that the tensions between compliance and inventivity are discursively solved in a way that aligns the worker with managerial priorities and decisions. Yet one could also suggest that the reference to inventivity leaves open possibilities for work practices that challenge established identities and social relations at work. In order to move our analyses further, our data will encompass texts (including talks) produced by other social actors in organizations, in order to see if and how DML is differently articulated with respect to inventivity and compliance. In the analysis, the textual features will be related to the different aspects of the social practice and structure, thereby connecting DML at work to broader social, economic and political issues.

Discussion

Based on two tensions identified in the literature on the concept of (digital) media literacy, we introduced a framework distinguishing between two models of DML, corresponding to two dynamics of inclusion and autonomy: by compliance or by inventivity. The two forms of inclusion we described are indeed different but not exclusive. They both exist in a continuum between "low-level" and "high-level" digital media literacy. At the lowest level, compliance is the first stage of literacy. The absence of

literacy leaves the citizen or the economic agent in a situation of exclusion that does not allow them to grasp their media environment, let alone to actively contribute to it. At the lowest levels of DML, people are able to operate technology so as to function adequately at work or in society at large. At the highest levels, inventivity means that individuals are able to act on their technical, social and informational environment to improve their conditions of living and work.

The continuum between compliance and inventivity pictured in Figures 3a and 3b may seem to induce a scale of value: being inventive seems to be the holy grail of DML. In fact, this continuum rather serves to represent a dynamic process of adaptation than a progression. In other words, the more literate citizen or worker is not the more inventive and *a contrario* the less the compliant. In the context of technologically-mediated collaborative work practices, whereas full compliance to a given socio-technical environment is synonym of alienation, pure inventivity without compliance will result in an individuation of the activities heading towards anarchy, opportunism, or sabotage. Then, the more literate individuals in a technically-mediated human organization are those who have the skills to use media compliantly for performing shared activities, as well as have the inventivity to selectively improve the conditions of the organization in itself. DML lies in the articulation of compliance and inventivity throughout time in an effective and meaningful way.

Our analyses of distant teamwork practices are expected to yield results that can be situated on this continuum between purely compliant practices and a combination of compliant and inventive practices (*see above figure 3b*). From there, we can infer the abilities required to perform these practices, and assign them levels of DML. Finally, this will allow us to determine the dominant ways in which our informants' DML contribute to their inclusion at work: by letting them adapt to their technical environment and adopt compliant practices (first-order inclusion), or by inventively adapting their work environment (second-order inclusion).

However, the relationship between observed practices and DML is not straightforward. As noted by different authors, a competence is not observable in itself but only through performances (Rey et al., 2012; Peyré, 2000). In the context of our research, professional practices count as situated performances. But whereas a performance is an indicator of competence, the absence of performance does not necessarily denote an absence of competence, as other mitigating factors may come into play. One such factor

in the exercise of DML in context is identified in the literature as *trust*.

The concept of trust traditionally refers to an attitude that conditions civic engagement and collaboration (Putman, 1995). Trust concerns interpersonal relations as well as beliefs in institutions (Khodyakov, 2007). Luhmann (1988) makes an important distinction between *trust* and *confidence*. Both terms point to expectations and the possibility of disappointment. With confidence, expectations are based on previous experiences, which justify the fact that no alternative is considered (i.e. there is no reason to think that things could happen otherwise). In case of failure, confidence implies an external attribution: if the situation goes wrong, I have nothing to do with that, because it usually works. On the other hand, trust is fundamentally related to uncertainty, and inherently involves risk-taking. Trust implies an internal attribution, and failure will prompt individuals to question their decision to take risks.

Of course, trust and confidence are not mutually exclusive. A complex system such as a human organization needs confidence as a condition of participation (e.g. work conditions cannot be changed all the time) and trust as a condition of best use of the opportunities (Luhmann, 1988; La Porta et al., 1996). Trust can be seen as a process affected by previous experiences (that create confidence or not), and that affects future expectations, and consequently the conditions of trust (Khodyakov, 2007). In this sense, a positive dynamic between confidence and trust can foster cooperative activities inside and outside the group (Fukuyama, 1999). *A contrario*, a negative dynamic of unavoidable confidence generates a feeling of dissatisfaction and a feeling of alienation, and situations of distrust alter the system by changing the way people decide, reducing the range of actions, and limiting what Fukuyama (1999) called the "radius of trust" or the number of persons "among whom cooperative norms are operative" (see also Luhmann, 1988).

In the context of work, how individuals use digital media and technology to perform their professional activity can be a matter of confidence or trust placed in the organization. On the one hand, compliant uses of technology (and discourses on technology) at work may primarily rely on confidence in the organization, i.e. on expectations of stability of the context of work, which allow workers to behave as they are used to (and told to) do, without questioning their usual course of action. On the other hand, inventive media practices may rely to a greater extent on trust, i.e. on the feeling that the organization supports the possibility of taking risks.

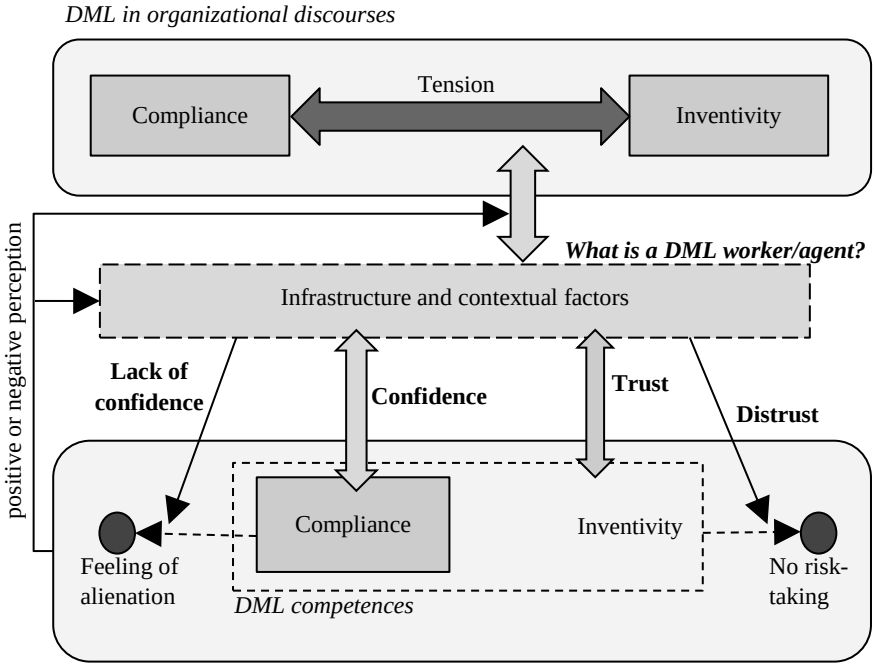
We hypothesize that the performance of competences through work practices may be affected by how DML at work is discursively constructed in organizations. As noted earlier, organizational texts contribute to the production and circulation of broader discourses where the worker's identities and social relations are defined in terms of inventivity and/or compliance. These two representations of DML participate in the construction of a work context based on confidence or trust. On the one hand, workers are discursively expected to achieve their goals by complying with the given social and technical structures and to be *confident* in the organization's views and strategies. On the other hand, discourses support social and technical initiatives to develop innovative solutions where hierarchical structures are less important than team members working collaboratively in the better way they think to achieve their goal. In this case the organization is building a relation of *trust* with the workers.

Most of the organizational changes explored so far as part of data collection are heralded by the management with references to autonomy, diversity, modernity or flexibility. While this rhetoric sounds inclusive, it also aims at creating the adhesion of the workers to the process of change (Olivesi, 2006). Indeed, organizational changes such as a "digital transformation" are never presented as an option, even if the workers are invited to express their views. In the context of NWOW, compliance is a necessary condition of change.

Of course, other contextual factors may come into play, such as the technical infrastructures, the work organization, the workplace design and the structural conditions of the organization (e.g. training policies). Whether these contextual factors are aligned with organizational discourses or not may affect the way workers perceive the extent to which their employer support (or not) risk-taking and inventivity, thereby fostering (or not) inventive practices/performances (as the expression of their digital media literacy). One specific example lies in the technical infrastructures that the employer puts at the disposal of the employees for them to achieve their work. These infrastructures are part of the context of work (Kirsh, 2001). They set the arena for the individual's activities and will therefore be documented by our analyses of situated work practices. For instance, in an organization that served as exploratory case study, VoIP telephony is presented by the management as a standardized solution that allows phone contacts in a flexible way, no matter where you are in the organization. Instead, due to the lack of confidence in the system's performance, some

people prefer using instant messaging audio calls as the "flexible solution". In this case, workers found an inventive solution (which was materially possible, and trusted to be allowed by the employer) to respond to the tension between the discourse of the management and the limitations of the infrastructures.

Figure 4: The joint influence of discourses and contextual factors on confidence and trust as conditions for DML performances



Finally, just as organizational discourses may shape the work practices of individuals, these practices may in turn feed the way digital media literacy is discursively constructed. The relationship between practices and discourses is a dynamic one, and by studying how they both involve tensions between compliance and inventivity, our research offers an integrated framework for examining how these interactions unfold, and their consequences on the

exercise of DML. In this dynamic perspective, the type of inclusion (by compliance or by inventivity) depends on a resolution of tensions through practices and discourses, which affect the future conditions of that resolution.

Beyond its utility for digital media literacy research, we believe that analyses based on the framework presented in this paper can yield a valuable diagnosis for human resources and IT management. First, they can reveal the mechanisms underlying the socio-technical organization of the communication, coordination and information management systems developed by the distant work teams. A better knowledge of these mechanisms can help answer questions at different levels.

- At the level of the implementation and management of new communication tools: what are the most useful tools, and what functions do they fulfill?
- At the level of the organization of teams equipped with these communication tools: does their use foster new forms of task division, new decision-making procedures, and new opportunities or constraints for self-initiatives?
- At the level of the training of agents involved in teams: what individual and collective skills are developed spontaneously in teams, and do not require training?

Second, these analyses can highlight how technological and organizational factors create the conditions of confidence and/or trust in the organization (as stable and/or supportive of risk-taking) from workers, and how they can foster the development and expression of either compliant or inventive forms of digital media literacy. This represents a significant step towards adjusting:

- the technological infrastructure (e.g. "Are tools pre-configured for specific tasks preferable to open tools that can be configured by the users?");
- the organization of teams (e.g. "Should the management guarantee the permanence of previously defined organizational models or, on the contrary, foster the fluidity of the modes of organization emerging from field interactions through the new communication tools?");
- the opportunities for training and learning (e.g. "What individual and collective skills should be developed through specific training activities organized by companies?").

Finally, combined with CDA, our framework achieves a critical significance as well, as it unfolds the socio-political implications of defining and promoting DML at work. Thus, the taken-for-granted understandings of "DML" are transformed into an object of discussion, not only in socio-

economic terms, but also regarding social identities and relations at work (and more broadly society). In that sense, our framework is a contribution to developing further a democratic debate over "new ways of working" and their social consequences. To put it otherwise, by opening up the discussion to different (and possibly conflicting) perspectives, our framework is a contribution to inclusive and participatory approaches in IT and human resources management.

Ultimately, our goal is to avoid an *a priori* conception of "new ways of working" as inherently improving social inclusion and participation, by developing a complex understanding of *how* inclusion is transformed by these new working contexts. Incidentally, this research will provide the opportunity to revisit the concept of competence, defined not as decontextualized list of functional skills, but as the ability to relevantly call upon multiple resources in complex situations, framed by discursive and organizational conditions.

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